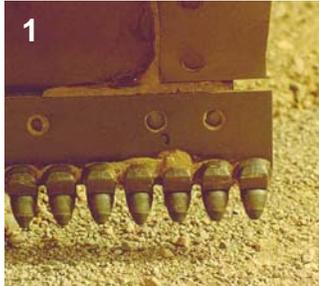


## Rotating Carbide-Tipped Grader Blades

Rotating carbide-tipped blade systems have freely rotating carbide bits that offer several benefits when grading unpaved roads.

### Benefits of the Carbide-Tipped Blade System



**Durability.** The individual carbide steel cutting bits rotate with the vibration and abrasion of grading operations (see photo 1). High quality carbide cutting bits will outlast traditional cutting edges by as much as thirty to one.

**Cutting Effectiveness.** Compared with traditional straight blades, carbide-tipped blade systems are more effective in cutting hard surfaces and typically cut deeper with each pass. The carbide bits shatter rocks

rather than pulling them up out of the road (see photo 2). The cutting bits also grind off rocks and ledge outcrops with each pass, allowing the grader operator to restore the road to the desired cross section.

**Increased Productivity.** Because the individual cutting bits shatter and chisel through rocks rather than aggressively hooking them, it is possible to safely and effectively grade at faster travel speeds. Final grooming of the graded road can be accomplished with the carbide-tipped blade system eliminating the aggregate separation/segregation typically associated with time-consuming raking. Road material segregated by raking generates more dust. Dust is expensive.

**Binding and Compaction.** A common problem with traditional grading equipment is failure of the freshly graded road material to stay in place. The carbide-tipped blade system helps enormously with this persistent difficulty. The cutting action of the blade creates grooves in the aggregate surface (see photo 3). The grooves eliminate shear planes and act as anchor points to bind graded road material in place and enhance compaction, especially where road material is placed in a layer (lift) thinner than ideal for compaction.

**Grading Under Wet Conditions.** The cutting action of the individual carbide bits allows for grading under high moisture conditions. The clumping or balling-up of fines that typically occurs under wet conditions with traditional blades does not happen with this system (see photo 4). Moisture provides both lubrication and cohesion. Productivity is improved by lubrication (less friction, less horsepower, less fuel, faster operating speed) and road performance is improved by cohesion, (reduces segregation, reduces dust, enhances compaction) (see photo 5). The cutting action of this blade system dries material very rapidly. Grader operators should be careful not to disturb large sections of road because the material may dry faster than the operator can reshape the road.

### Photos:

4. Note the high moisture content of the graded aggregate. The material is well mixed by the toothed blade and can be effectively compacted.
5. Here maintenance grading was done after an overnight rain event.



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